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SELF-FEEDING *versus* HAND-FEEDING

SOWS AND LITTERS

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EVERY EFFORT should be made to develop pigs during the suckling period so that they will continue to grow and fatten as rapidly as possible.

Labor on most farms is becoming less plentiful and more expensive. Any system of management of sows and pigs which requires less labor is therefore beneficial.

If the cost of feeds and the expense of feeding are too great, even animals of good type will fail to produce satisfactory results.

The results of experiments that show a saving of both labor and feed by the use of self-feeders are given in this bulletin.

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SELF-FEEDING VERSUS HAND-FEEDING SOWS AND LITTERS

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POINTERS FOR PROFITABLE PIG PRODUCTION

THE MOST PROFITABLE PIG is one which never stops growing and makes good gains from the time it is farrowed until it is ready for market. The method of handling and caring for brood sows and their litters during the suckling period deserves the attention of every hog grower, for it is during this period that the pig gets its start; and whatever profit is derived when the pig is marketed depends very much on its size and condition at weaning time.

The quantity of feed consumed per pound of gain is always important in the business of fattening livestock, and must be given serious consideration by the producer. There is no question that the very best feed for young pigs is their mother's milk, and there should be an ample supply, especially after the pigs are from 1 to 2 weeks old.

Young pigs depend entirely on the mothers' milk during the first three weeks of life. With muscular growth and development, the need for more feed increases. The sow should have practically no feed during the first 24 hours after farrowing but should be supplied with plenty of lukewarm water. On the second day she should have a small quantity of bran or middlings in the form of a thin slop. The quantity and quality of the feed may be increased daily, depending upon the size of the litter and the feeding capacity of the sow. This system of feeding prevents an excessive flow of rich milk, which may cause digestive troubles, resulting in white scours and possibly death of the pig.

After the sow is on full feed, which generally is from one to two weeks after farrowing, the question arises as to how best to produce and maintain the maximum flow of milk with the minimum of feeding. During the suckling period the feed given the sow should be of a kind to stimulate the production of milk.

If the hand-feeding method is followed, the labor expense of caring for brood sows and their litters is considerable, as the herdsman must be on the job every morning and evening and sometimes at noon. The question of labor is of special importance during the times when the pigs are being farrowed. Farmers are then pressed for time to such an extent that often some things are left undone. At such times there is irregularity in feeding, which is very objectionable with brood sows. Every pound of weight lost during the life of a pig requires a certain quantity of feed to replace the loss. Loss of weight at any time should be avoided if possible. If the self-feeder is used, several days or even a week's supply of feed may be stored in the hoppers in a very short time.

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OUTLINE OF EXPERIMENTS

For many years experienced hog men have supplied additional feed other than milk to pigs through the use of a creep or inclosure of some kind, after the pigs were about 3 weeks old, while the sows were hand-fed two or three times daily according to their condition. These matters were under consideration when, in 1921, some experiments were started at the United States Experiment Farm, at Beltsville, Md., to determine the possibilities of using the self-feeder for sows and their pigs during the entire suckling period. The experiments were carried on during 1921, 1922, and 1923 with a total of 101 sows and their litters. Table 1 gives the details of the number of sows and pigs, the feeds used, weights and gains or losses of sows and pigs, and other information for the years 1921–1922.

In 1923 the results showed a very decided difference in the feed consumed per 100 pounds of gain. Considerable difficulty was experienced in getting the sows in the hand-fed lot to eat the feed given them. Different methods were tried. The feeds were given both separately and mixed, the middlings being hand-fed both dry and in the form of a slop. Whole corn was fed part of the time and part of the time ground corn, mixed with middlings, was fed after it had been soaked. The sows and pigs in the hand-fed lot were not in nearly so good condition as were those in the self-fed lot.

Because of this difficulty the results were abnormal and showed altogether too much difference in favor of the self-fed lots. For this reason results obtained in 1923 are not reported. Certain figures in the table which may be considered unusual, as the fraction in the average number of days on test, are due to the fact that there was some variation in the length of time some lots were in the experiment.

TABLE 1.—*Results of self-feeding compared with hand-feeding sows and litters during suckling period, average of two years, 1921–22*

Item		Self-fed	Hand-fed
Total number of lots on test		7	3
Total number of sows with litters		55	22
Average duration of test	days	41	44.33
Initial number of pigs per sow		6.5	7.1
Final number of pigs per sow		6.2	6.9
Average age of pigs at start of test	days	29.62	31.73
Average initial weight of sows	pounds	338.58	320.73
Average final weight of sows	do	351.35	309.14
Average gain (+) or loss (−) per sow	do	+12.77	−11.59
Average daily gain or loss per sow	do	+0.32	−0.26
Average initial weight of pigs	do	13.22	13.59
Average final weight of pigs	do	33.60	30.60
Average gain per pig	do	20.38	17.01
Average daily gain per pig	do	.51	.39
Pork produced per sow and litter	do	145.45	109.00
Feed consumed per sow and litter	do	641.54	657.36
Corn	do	513.58	436.68
Middlings	do	46.38	174.18
Tankage	do	78.76	44.68
Mineral mixture	do	2.82	1.82
Feed per 100 pounds' gain (sow and litter)	do	441.06	603.09
Corn	do	353.09	400.63
Middlings	do	31.88	159.80
Tankage	do	54.15	40.99
Mineral mixture	do	1.94	1.67

During the three years, purebred sows of the following six breeds were used: Duroc-Jersey, Poland China, Chester White, Hampshire,

Tamworth, and Berkshire. In addition to these, some grade sows and litters were on test. Careful attention was given to the selection of sows and litters in each lot during each year that the experiment was conducted, consideration being given to the age and number of sows and pigs and quality of individuals. In most of the tests pastures of various kinds were used. These pastures were usually rye, but a mixture of oats and some native grasses was sometimes used.

The general plan of feeding the self-fed lots was to supply certain feeds in the self-feeders which were constantly accessible both to the sows and their pigs as shown in Figure 1. The sows and pigs in the hand-fed lots were given twice daily all they would readily eat of identically the same feeds as were contained in the self-feeders for the self-fed lots (fig. 2).

In each test where the sows were hand-fed, self-feeders were placed in creeps, making the supplementary feed accessible to the little pigs

FIG. 1.—Sows and pigs at self-feeder, illustrating equipment and types of animals

after they had reached 3 weeks of age. Corn alone was contained in these feeders for two or three weeks, after which the protein feeds which were being given to the sows were added.

SUMMARY OF RESULTS

Close observation of the sows and pigs during the time these tests were carried on indicated that both sows and pigs on the self-feeders looked better and were more thrifty than the sows and pigs in the hand-fed lot.

A noticeable fact about the sows in the self-fed lots was that there never was any crowding at the feeders. Scarcely ever were there more than two or three sows eating at the same time, even when a dozen or more sows were being fed from the one feeder. Only a small quantity would be consumed at one time. It was taken slowly and apparently thoroughly masticated and digested.

When hogs of any age have constant access to self-feeders there is practically no danger of their overeating at any time. This is a

valuable factor in the use of self-feeders for sows which are suckling their litters.

The system followed in weaning the pigs was simple and apparently very satisfactory, especially in the self-fed lots. The plan in these lots was to put a fence around the self-feeders three or four days before the sows were to be taken away, leaving openings large enough so that the pigs might continue to have access to the feeds whenever they desired. Because the feed was shut off from the sows the milk flow was naturally reduced and the pigs soon forgot their mothers and depended entirely on the feeds from the feeder. In no case were there any noticeable ill effects among the pigs that were weaned by this system, nor did udder trouble develop in any of the sows.

On farms where equipment warrants, it is advisable to raise two litters a year from sows more than a year old. This materially reduces the overhead expense per pig and in no way injures the sows.

FIG. 2.—Sows and pigs hand-fed. This method required more feed per hundred pounds of gain than did the use of self-feeders, and the pigs were not ready for market so early

A distinct advantage in the breeding of sows for the succeeding litters became evident during the experiments. A total of 42 sows in the self-fed lot was bred before the pigs were weaned. Of this number 81 per cent settled from the first service. Seventeen sows in the hand-fed lot were bred during the suckling period, but only 47 per cent of them settled at the first service. No attempt was made to breed all the sows in either of the lots for the next farrowing period during the suckling period.

During 1924 and 1925, the system of using self-feeders for sows and litters throughout the suckling period was followed exclusively at this experiment farm with entirely satisfactory results. The success attained in breeding sows during the suckling period and having them settle for the next litter has been noticeable. During these last two years the sows and pigs have been put on self-feeders when the pigs were from 7 to 14 days old, depending on the time the

sow was at full feed after farrowing. It will be noticed that in the tests here reported the pigs were considerably older when placed on test. In 1921 the range in age of the pigs when placed on test was from 20 to 42 days; in 1922 the range was from 24 to 42 days; and in 1923 the range was from 13 to 36 days. No noticeable difference was recorded in the gains and thriftiness of the pigs of the various ages that were placed on the feeders during the tests.

The number of sows and litters that may be fed on self-feeders in any single lot has not been determined. At the experiment farm where these tests have been carried on, as many as 20 sows with their litters have thrived with but one self-feeder available. It is always advisable to have good pasturage for the sows and pigs during the suckling period regardless of the method of feeding used.

In 1923 no animal protein was supplied either to sows or pigs during the suckling period. The absence of animal protein in the ration

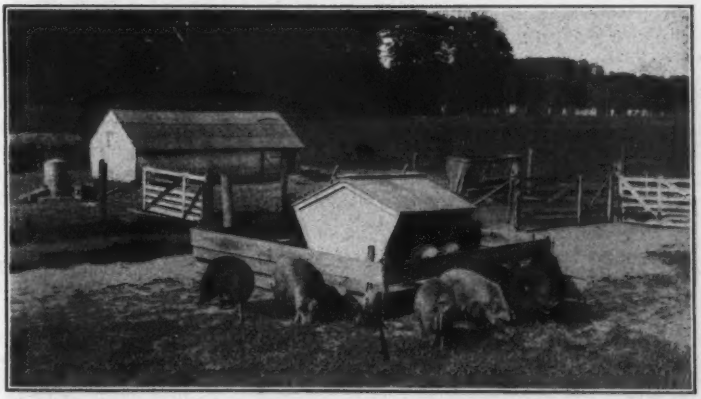

FIG. 3.—The pigs are weaned by placing a fence, with creeps for the pigs (see arrow), around the self-feeder three or four days before the sows are taken away

was not intended as a test to show the value of it, but as a test to determine the results from the other feeds given the self and hand fed lots of sows respectively. The outcome should in no wise be taken as determining the relative value of animal protein for sows during the suckling period.

There was a striking difference in the quantities of feeds consumed in the various lots during the three years. The sows and pigs in the hand-fed lots consumed a much greater quantity of middlings than those in the self-fed lots.

No. 2 yellow corn, commercial gray middlings of good quality, and 60 per cent standard tankage were used in most of the tests.

The outstanding fact among the results of the experiments is that the feed cost per 100 pounds of gain was materially less in the self-fed lots than in the hand-fed lots. In the self-fed lots it required a total of 441.06 pounds of feed for 100 pounds of gain, whereas in the hand-fed lots 603.09 pounds were required. At the beginning of the test the writers were of the opinion that the sows and pigs when placed on self-feeders would show better results so far as weight and

condition were concerned, but they did not suspect that it could be accomplished with less feed.

Taking into consideration, as demonstrated by these tests, that sows and pigs on self-feeders may be carried through the suckling period with less feed per 100 pounds of gain and are in better condition at weaning time, and that it is possible to put the pigs on the market at an earlier age, together with the saving of labor and feed, it seems conclusive that the practice of self-feeding sows and pigs during the suckling period is one that can be safely and profitably followed by hog producers.

ADDITIONAL RESULTS IN SUBSEQUENT DEVELOPMENT OF PIGS

The satisfactory results obtained in the foregoing tests continued throughout the life of the pigs, as is shown in Table 2. It will be noted by this table that the average daily gain of the pigs in the self-fed lots was greater than those in the hand-fed lots, from farrowing to weaning, from weaning to the beginning of various feeding tests in which the pigs were subsequently used and also during the time they were on these tests.

In starting the pigs for such test purposes no attempt was made to get an even division of pigs from self-fed and hand-fed lots, but there were pigs from both lots in practically all the tests, represented in the table. In addition to the results shown in the tables, there was a noticeable difference in the condition of the pigs at weaning time in favor of the self-fed lots.

TABLE 2.—*Results from self-fed and hand-fed lots of pigs during suckling period and in their subsequent development during various feeding tests. The figures represent two-year averages*

Item		Self-fed	Hand-fed
Number of pigs in tests		253	101
Average weight when farrowed	pounds	2.38	2.36
Average weight when weaned	do	35.71	32.61
Average gain from farrowing to weaning	do	33.33	30.25
Average age at weaning	days	71.02	76.24
Average daily gain from farrowing to weaning	pounds	.47	.40
Average gain, weaning to beginning of test	do	70.96	67.15
Average number of days, weaning to beginning of test	do	119.54	120.49
Average daily gain, weaning to beginning of test	do	.59	.56
Average weight, beginning of test	do	106.66	99.76
Average weight, close of test	do	197.74	188.18
Average gain on test	do	91.08	88.42
Average age, beginning of test	days	190.56	196.73
Average age, close of test	do	266.36	289.89
Average days on test	do	75.80	93.16
Average daily gain on test	pounds	1.20	.95
Average daily gain, farrowing to close of test	do	.73	.64

The important comparisons in the table are uniformly in favor of the self-fed lots. The pigs in those lots made larger daily gains from farrowing to weaning and also during the various tests in which they were used.

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